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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,542	07/29/2003	Kenneth M. Williams	PA2221US	7485

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EXAMINER	
TECKLU, ISAAC TUKU	
ART UNIT	PAPER NUMBER
2192	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/630,542	WILLIAMS ET AL.	
	Examiner	Art Unit	
	Isaac T. Tecklu	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22,38-46 and 54-74* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22,38-46 and 54-74* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *07/28/06, 02/21/06, 10/18/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the amendment filed on 02/21/2007.

2. Applicant has elected to withdraw claims 23-37 and 47-53.

3. Applicant has elected to proceed with examination of claims 1-22, 38-46 and 54-74.

4. Claims 1-22, 38-46 and 54-74 have been examined.

5. Applicant's election of claims 1-22, 38-46 and 54-74 in the reply filed on 02/21/2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Objections

6. Claims 12, 44 and 64 recite acronym "HDL", such acronym should be spelled out once in the claims as its intended meaning and utility is likely to be changed over the times. Appropriate correction is required.

Oath/Declaration

7. The office acknowledges receipt of a properly signed oath/declaration filed on 07/29/2003.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 2, 39 and 55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2, 39 and 55 recite the limitation "the length " in lines 2-3 of each claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 1-22, 38-46 and 54-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moberg et al. (US 6,698,015 B1) in view of Dice et al. (US 6,799,236 B1).

Per claim 1, Moberg discloses a method for modifying a program to allow the program to execute on a processor system that includes a programmable logic device, the method comprising:

identifying a critical code segment of the program (col. 19: 50-65 "... critical code must be tagged or identified ...");

revising the program by designating the function as a code to be compiled by an extension compiler (col. 20:63-67 and col.21:1-10 "... once the critical functions are identified and separated ... are compiled ...") and by replacing the critical code segment with a statement that calls the function (e.g. FIG. 12, element 1210-A-1220E and related text); and

compiling the revised program such that the function is executed by the programmable logic device (col. 20:63-67 "... all of the source files 1220 of FIG. 12 are compiled ...").

Moberg does not explicitly disclose rewriting the critical code segment as a function. However, Dice discloses operation performing the reset operation includes replacing current processor information existing within the current state of the critical code with the processor information obtained from the registered or saved state of the critical code (col. 8:1-10). Therefore it would have been obvious to one ordinary skilled in the art at the time the invention was made to rewrite the critical code segment as a function to in order to allow the operation of returning to execution of the critical code to begin execution of the critical code without interference from handling the interruption as once suggested by Dice (col. 8:1-15).

Per claim 2, Moberg discloses the method of claim 1 wherein the critical code segment is defined by the length of time required for execution (col. 2:20-30 "... execution speed of critical code ... ").

Per claim 3, Moberg discloses the method of claim 1 wherein the critical code segment is a nested loop (col. 12:1-20 "... the following is a commented example ...").

Per claim 4, Moberg discloses the method of claim 1 wherein the program is written in a programming language and the function is written with the same programming language (col. 2: 1-10 "... critical code ... instructions or even high-level language instruction ...").

Per claim 5, Moberg discloses the method of claim 1 wherein the function is selected from a library of pre-defined functions (col. 21:60-67 "... programming language ...").

Per claim 6, Moberg discloses the method of claim 1 wherein the function defines an integer with a non-standard number of bits (col. 16:10-20 "... provide the integer ...").

Per claim 7, Moberg discloses the method of claim 1 wherein the program is written in a program file and designating the function as a code includes writing the code to an extensions file (col. 2: 1-10 "... critical code ... instructions or even high-level language instruction ...").

Per claim 8, Moberg discloses the method of claim 1 wherein compiling the revised program includes copying the code to an extensions file (col. 15:60-67 "... instruction to copy ...").

Per claim 9, Moberg discloses the method of claim 1 wherein compiling the revised program includes compiling an extensions file including the code to produce a header file and an intermediate file written in a hardware description language (e.g. TABLE 3 and related text).

Per claim 10, Moberg discloses the method of claim 1 wherein the step of revising is performed manually (e.g. FIG. 1, element 10 and related text).

Per claim 11, Moberg discloses the method of claim 1 wherein the step of revising is performed using an automated conversion tool (e.g. FIG. 1, element 12A-12D and related text).

Per claim 12, Moberg discloses the method of claim 9 wherein the hardware description language is Verilog HDL (col. 21:60-67 "... programming language ...assembly language...").

Per claim 13, Moberg discloses the method of claim 9 wherein the header file declares a prototype for the function (e.g. TABLE 3 "function prototypes" and related text).

Per claim 14, Moberg discloses the method of claim 9 wherein the intermediate file includes an implementation of the function as an instruction for a programmable logic device (e.g. TABLE 3 "Implementation of dladdr" and related text).

Per claim 15, Moberg discloses the method of claim 10 wherein the header file and the revised program are compiled together by a standard compiler to generate an executable file (col. 20:63-67 "... all of the source files 1220 of FIG. 12 are compiled ...").

Per claim 16, Moberg discloses the method of claim 15 wherein the standard compiler also includes the compiling of a configuration file in generating the executable file (col. 20:63-67 "... all of the source files 1220 of FIG. 12 are compiled ...").

Per claim 17, Moberg discloses the method of claim 1 further comprising: profiling the revised program; and evaluating the performance of the revised program (col. 20:63-67 and col.21: 1-10 "... once the critical functions are identified and separated ... are compiled ...").

Per claim 18, Moberg discloses the method of claim 17 wherein evaluating the performance of the revised program includes comparing the performance against a timing requirement (col. 18: 40-50 "... are compared against ...").

Per claim 19, Moberg discloses the method of claim 17 wherein evaluating the performance of the revised program includes comparing the performance against a prior performance (col. 18: 40-50 "... are compared against ...").

Per claim 20, Moberg discloses the method of claim 1 wherein the function executed by the programmable logic device does not have direct access to non-register file memory (e.g. FIG. 8 and related text).

Per claim 21, Moberg discloses the method of claim 1 wherein the function executed by the programmable logic device has register file inputs and outputs limited to a predetermined number set by the compiler (e.g. FIG. 9 and related text).

Per claim 22, Moberg discloses the method of claim 21 wherein the limited predetermined number of register file inputs is three (e.g. FIG. 9 and related text).

As per claim 38, this is another method article version of the claimed method discussed above (Claim 1), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 39, this is another method article version of the claimed method discussed above (Claim 2), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 40, this is another method article version of the claimed method discussed above (Claim 3), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 41, this is another method article version of the claimed method discussed above (Claim 5), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 42, this is another method article version of the claimed method discussed above (Claim 8), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 43, this is another method article version of the claimed method discussed above (Claim 9), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 44, this is another method article version of the claimed method discussed above (Claim 12), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 45, this is another method article version of the claimed method discussed above (Claim 10), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 46, this is another method article version of the claimed method discussed above (Claim 11), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 54, this is system version of the claimed method discussed above (claim 1), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 55, this is system version of the claimed method discussed above (claim 2), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 56, this is system version of the claimed method discussed above (claim 3), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 57, this is system version of the claimed method discussed above (claim 4), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 58, this is system version of the claimed method discussed above (claim 5), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 59, this is system version of the claimed method discussed above (claim 6), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 60, this is system version of the claimed method discussed above (claim 7), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 61, the system of claim 54 wherein the program is written in a program file and means for revising the program by designating the function as a code includes means for writing the code into the program file and demarking the code (e.g. FIG. 8 and related text).

As per claim 62, the system of claim 54 wherein means for compiling the revised program includes means for copying the code to an extensions file (e.g. FIG. 8 and related text).

As per claim 63, this is system version of the claimed method discussed above (claim 8), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 64, this is system version of the claimed method discussed above (claim 12), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 65, this is system version of the claimed method discussed above (claim 13), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 66, this is system version of the claimed method discussed above (claim 14), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 67, this is system version of the claimed method discussed above (claim 15), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 68, this is system version of the claimed method discussed above (claim 17), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 69, this is system version of the claimed method discussed above (claim 18), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 70, this is system version of the claimed method discussed above (claim 19), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 71, this is system version of the claimed method discussed above (claim 20), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 72, this is system version of the claimed method discussed above (claim 21, wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 73, this is system version of the claimed method discussed above (claim 122), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

As per claim 74, this is the method version of the claimed method discussed above (claim 1), wherein all claim limitations have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isaac T. Tecklu whose telephone number is (571) 272-7957. The examiner can normally be reached on M-TH 9:300A - 8:00P.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Isaac Tecklu
Art Unit 2192